

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated December 6, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-11 are under consideration in this application. Claims 1 and 6 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim Applicants' invention. All the amendments to the claims and the specification are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejection

Claims 1-3 and 6-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over US Pub. No. 2002/0009066 of Shimizu (hereinafter "Shimizu") in view of US Pub. No. 2001/0053694 of Igarashi (hereinafter "Igarashi"), and claims 4-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Shimizu in view of Igarashi and US Pat. No. 7,072,317 to Vakil (hereinafter "Vakil"). These rejections have been carefully considered, but are most respectfully traversed in view of the claims currently on file, as more fully discussed below.

The packet communication method of the invention (for example, the embodiment depicted in Fig. 17) between first and second terminals 40, 30x (Fig. 1) each having a packet communication function and a communication route optimizing function according to a mobile IP (Internet Protocol), comprises the steps of: transmitting a session control message (e.g., a SIP invite message 80B in Fig. 16) from said second terminal 40 to said first terminal 30x when said first terminal 30x exists in a visited network apart from a mobile IP home network; executing a communication procedure, before beginning transmitting a data packet, for deciding whether an optimization of a communication route to said second terminal 40 by said first terminal

30x is necessary or not according to the session control message 80B (Step 310 in fig. 17 “whether the communication route to the terminal 40 as the transmitter of the SIP message should be optimized and whether the optimization of the communication route is possible (310)” p. 44, lines 13-17), optimizing the communication route to said second terminal 40 by said first terminal 30x if the optimization of a communication route is decided as necessary on reception of said session control message 80B; and transmitting a response message ACK for said session control message 80B from said first terminal 40 after completion of optimization of said communication route (“the mobile node 30x sends the SIP response message (200 OK) for the SIP message (INVITE) 80B (202B) after completion of the optimization of the communication route.” P. 45, lines 10-13; “When the mobile node 30x registers the entry generated in step 207 into the binding update list management table 381 (210), thereby completing the optimization of the communication route.” p. 45, lines 4-8). The first and second terminals communicate said data packet only after completion of optimization of said communication route and only through said optimized communication route.

The invention of claim 1 is directed to the first or second terminals for implementing the method of claim 6.

By having the first mobile terminal send a response message for a session control message from the second mobile terminal *only after* completing an optimization of a communication route between the two mobile terminals, the invention eliminates the problem of the prior art which executes the communication route optimizing process during communication of a data packet thereby incurring a difference between a packet transfer time before route optimization and a packet transfer time after route optimization (p. 9, line 21 to p. 10, line 3).

As such, the invention transfers ALL data packets via the optimum route without passing through the home agent (p. 46, lines 2-4; Fig. 17), thereby solving a prior art problem that when the communication between the mobile node and the home agent is performed in a form of an encapsulated packet obtained by adding an encapsulation IP header to an original packet, overhead for packet transfer increases since a data packet transmitted from the correspondent node to a mobile node is transferred via the home agent until a process of

optimizing a communication route of a mobile IP is completed between the mobile node and the correspondent node (p. 9, lines 8-21).

Applicants respectfully submit that none of the cited references teaches or suggests (1) “deciding, after a session control message from the other party is received in a visited network apart from a home network of the mobile IP and before beginning transmitting a data packet, whether an optimization of a communication route to the other party by said communication route optimizing function is necessary or not according to the session control message,” (2) “executing optimization of said communication route to the other party by said communication route optimizing function if the optimization of a communication route to the other party is decided as necessary, before sending a response message for the session control message”, and (3) “transmitting said data packet only after completing optimization of said communication route and only through said optimized communication route” according to the present invention.

Shimizu's route optimization method applies a triangular routing. When tunneling an IP packet, a home agent sends a Binding Update Message to a correspondent terminal. A foreign agent receives the Binding Update Message to register the information relating to a mobile terminal in a binding cache table. After the information relating to the mobile terminal is registered in the binding cache table of the foreign agent, the foreign agent encapsulates IP packets from the correspondent terminal based on the information registered in the binding cache table for the mobile terminal. The foreign agent tunnels (bypassing the home agent) the encapsulated packet to the care-of-address of the mobile terminal (p. 6, [0109]-[0112]).

However, Shimizu transmits the data packet with the triangular routing even before the information relating to the mobile terminal is registered in the binding cache table of the foreign agent (Fig 9), i.e., rather than “*only after* completing an optimization of a communication route between the two mobile terminals and only through said optimized communication route” as the preset invention. Therefore, Shimizu also does not teach “deciding, ... before beginning transmitting a data packet, whether an optimization of a communication route to the other party by said communication route optimizing function is necessary or not according to the session control message,” (2) “executing optimization of said

communication route to the other party ..., before sending a response message for the session control message” as in the present invention.

As admitted by the Examiner (p. 3, 2nd paragraph of the outstanding Office Action), Shimizu does not teach “the session controller having means for executing, when a session control message from the other party is received in a visited network apart from a home network of the mobile IP.” As such, Shimizu does not teach that “the session controller having means for deciding, after a session control message from the other party is received in a visited network apart from a home network of the mobile IP and before beginning transmitting a data packet, whether an optimization of a communication route to the other party by said communication route optimizing function is necessary or not according to the session control message” as in the present invention.

Igarashi was relied upon by the Examiner to provide such a teaching. However, Igarashi shares the same deficiencies as Shimizu’s.

Igarashi’s network system permits each terminal user to enjoy differentiated services with added values in an IP network including a mobile domain, and dynamically changing service even in the middle of a communication session. Igarashi’s home agent records an IP address of a correspondent node when/during a route optimization procedure takes place, and sends a Binding Update Message to a correspondent node which includes the new service profile based on the IP address of the correspondent node recorded to the home agent when a mobile terminal moves. The home agent performs route optimization when a packet from the correspondent node is intercepted and tunneled to the mobile terminal (p. 6, [0112]; p. 13, [0275]). As such, Igarashi’s home agent 40 also transmits the data packet before the information relating to the mobile terminal is registered in the binding cache table of the foreign agent, rather than only after completing an optimization of a communication route between the two mobile terminals and only through said optimized communication route” as in the present invention.

Igarashi also does not teach “deciding, ... before beginning transmitting a data packet, whether an optimization of a communication route to the other party by said communication route optimizing function is necessary or not according to the session control message,” (2) “executing optimization of said communication route to the other party ..., before sending a response message for the session control message” as in the present invention.

Vakil discloses a virtual Soft-Hand-off method with SIP protocol and does not concern route optimization. Therefore, Vakil fails to compensate for the deficiencies of Shimizu and Igarashi.

Applicants contend that cited prior art references or their combinations fail to teach or suggest each and every feature of the present invention as recited in independent claims 1 and 6. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

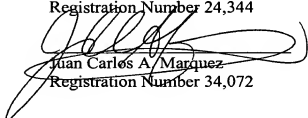
Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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